Workshop on Evidence-Base for Risk Management in Living Spaces
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REFLECTIONS ON PUBLIC SAFETY – *A UK EXPERIENCE*

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DARM
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LONDON in the 1960s

Acute effects of AIR POLLUTION

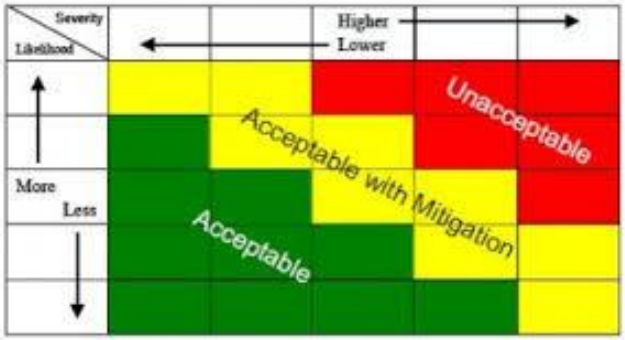
LONDON in the 2010s

Predicted number of deaths =
f(dose, dose-response function, number of people exposed)

WHAT ABOUT ACCIDENTAL INJURIES?

THE CASE OF LONDON UNDERGROUND

Subjectively this is a high risk situation



THE CASE OF LONDON UNDERGROUND

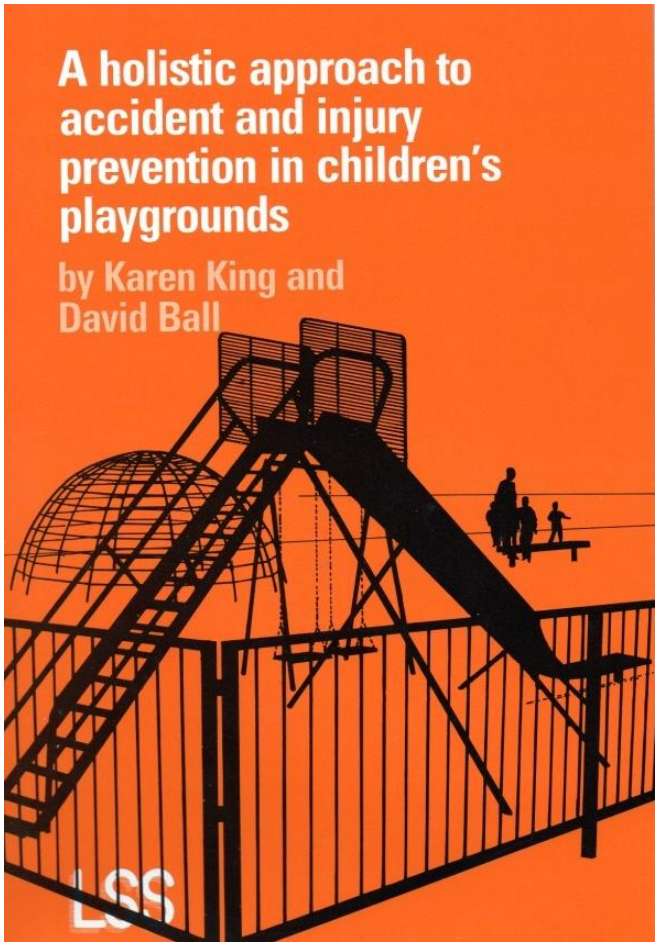
But objectively the risk is very low.

We know this because of the *injury data base*

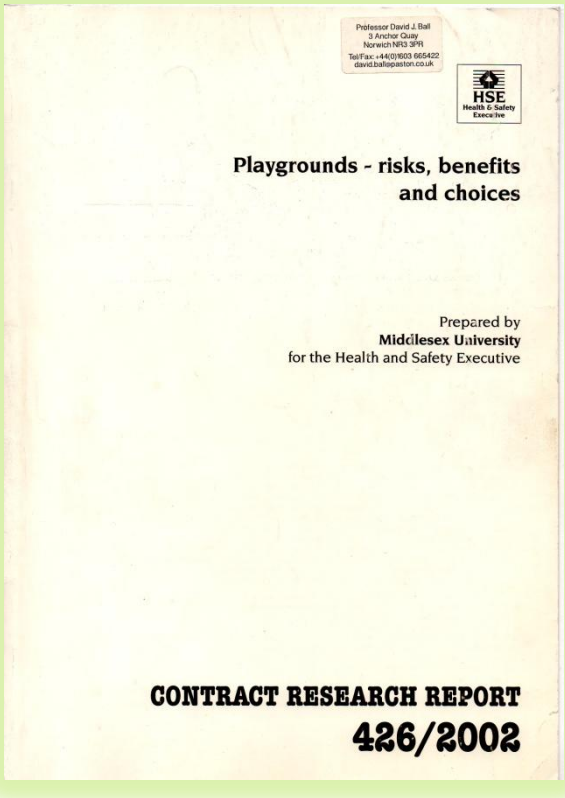
The Injury Data Base is currently the only way of getting *objective data*

ONE EXAMPLE OF THE USE OF AN INJURY DATA BASE

CHILDREN'S PLAYGROUNDS
– a hot topic since 1986



Statistical analyses using injury data bases



Some findings

	Fatalities	Hospital admissions	Hospital attendances	Other medical treatment	Non-medically treated
Equipment -related	**0.3**	3,600	**41,700**	100,000	~0.4 million
Equipment -related and non-equipment related	-	4,200	49,000	110,000	~0.5 million

Playground accidents: annual average, UK estimate

How significant are these numbers?

a) 41,700 hospital attendances from playgrounds compares with 2.25 million due to home and leisure accidents (i.e. 2% playground – related)

b) 0.3 fatalities per year from play compares with ~500 per year from accidental injury

c) Calculate risk of hospital attendance per 100,000 hours of participation -

12 million children, 1.5 hours per week of play, suggests

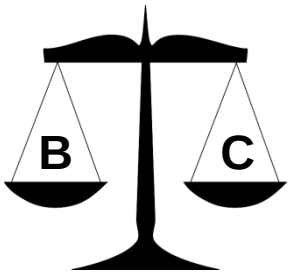
~ 4 cases per 100,000h of exposure to outdoor play equipment

Figure 1: Non-fatal injury rate based on A&E attendances

THE ECONOMICS OF CONSUMER SAFETY

Premise: A safety intervention *should* be made *if the benefits of the intervention (the reduced risk) exceed the costs*

Decision rule:
Proceed if B > C



BUT, HOW CAN CONSUMER SAFETY BE VALUED?

Two main methods:

- revealed preference

- expressed preference

QUESTION: Imagine you are in Tokyo. You wish to travel to Nagaoka by train and two train companies (A & B) offer a service. The services are identical except that the trains run by A are more likely to result in fatal accidents. Your risk of death on A is 1 in 50,000 whereas on B it is half of that i.e. 1 in 100,000. The fare on train A is $100. How much more would you be prepared to pay to travel on the safer train B?

An EXPRESSED PREFERENCE QUESTION

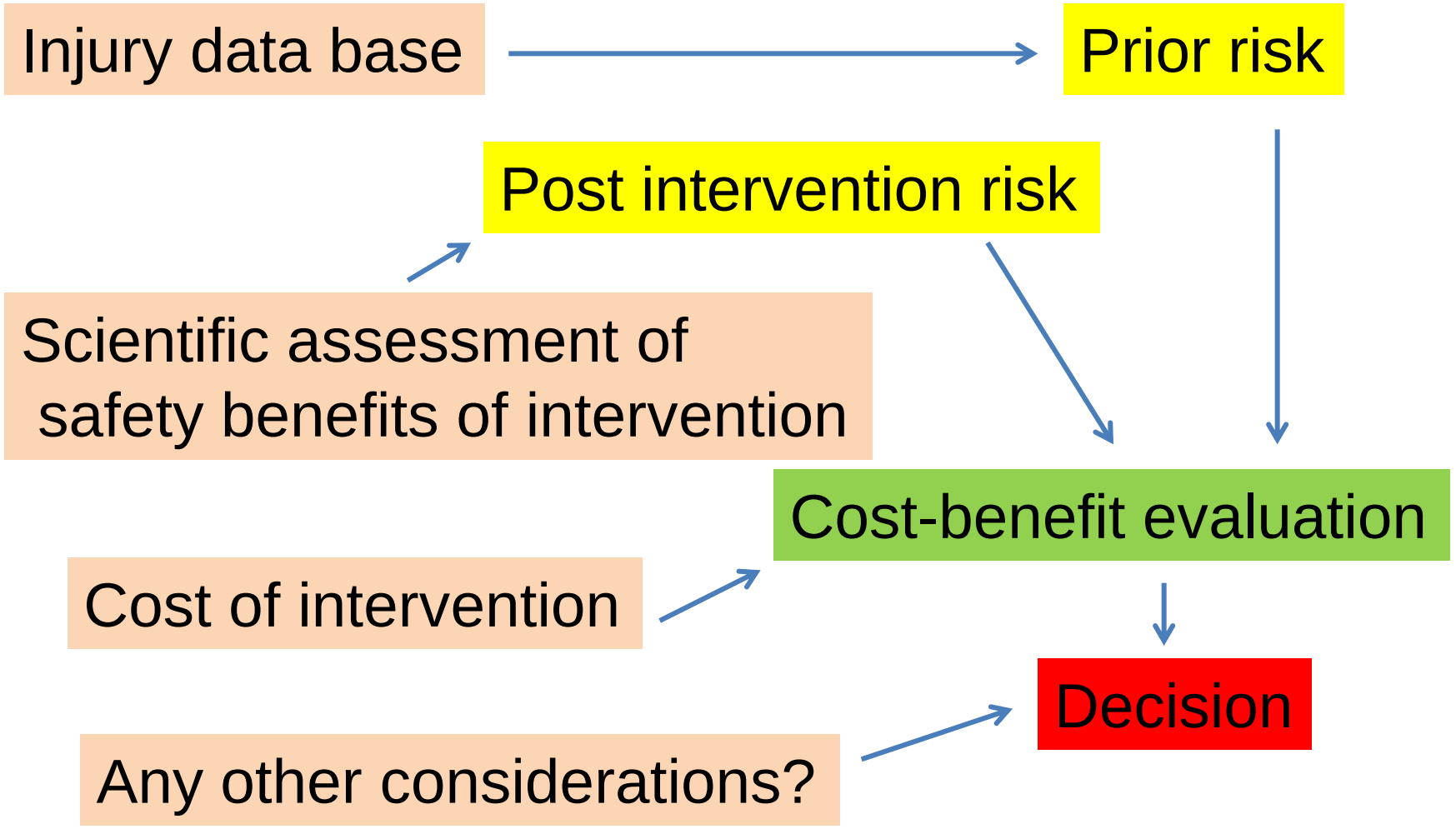
If you answer $50, the implied value of your life would be:

$50/(1/50,000 – 1/100,000) = $5 million

Based on a nationally representative sample,
the value of a statistical life in the UK
is currently ~ £1.5M (~200M Yen)

(Non-fatal injuries can be valued by
the same 'willingness to pay' approach,
or by scaling)

ASSESSING A CONSUMER SAFETY INTERVENTION



Scientific analysis shows that the safety benefits of rubber surfaces are << their cost

COMPLEXITY

Kensington High Street, London

Kensington High Street (after ‘improvement’)

The challenge posed by cycle helmets

TWO PARADIGMS

Children must be kept safe

Somewhere in Portugal

RATIONAL ACTOR PARADIGM

Children need danger

Toddlers at a Norwegian kindergarten

THE ADAPTIVE PARADIGM

CONCLUSIONS

- public safety is an important challenge
- however, it is complex and not easily achieved
- subjective assessments of public risk are unreliable
- understanding how to invest in public safety requires, as a starting point, **a good injury data base**

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